

Weekly Report

2017.11.13-2017.11.19

1.This Week

Summarization Form

Task	Progress	Time
Waveline	Paper: revise the paper.	This Week
Power Grid New Projects	Process the raw data but come up with a problem. We're still discussing with Dr. Huang and the technical team.	
Power Grid Visualization Survey	Gathering materials.	
VIS 2018 paper	Idea evaluation.	

Wavelines

- 1.Revise the paper: adding an experiment result section and a discussion section.
- 2.Examine the summary material revised by Chen Zexian. A few problems are found and more content needs to be added and revised.

SQC paper

- 1.The sqc idea is an anomaly detection approach. Based on this work, there's many extended ideas: the evolution analysis of anomaly, the spatial-temporal propagation of anomaly etc.
- 2.Detecting anomaly is a process to detect strange behaviors from normal status, but the power grid data is a process of recovering from abnormal status. I'm trying to find a way to connect the two different direction.
- 3.We're now discovering shortcomings of the initial sqc method used in the old wavelines system. And plan to apply two different anomaly detection methods on the power grid dataset to make comparison.

Power Flow Project in Ningbo

1. Process with the binary-coded data file. But the result can not match the data structure described in the illustration file. So we discussed with Dr. Huang and the technical team, and the problem is expected to be solved next week.
2. The intermediate process of the power flow dataset is not given by Dr. Huang. I asked him for it and he said he needs to prepare for it. I'm going to ask him again on Monday.

Papers

1. Anomaly Detection: A Survey

challenges in anomaly detection:

- define abnormal from normal
- anomalies try to make themselves normal
- normal behaviors keeps evolving (so is abnormal behaviors)
- availability of labeled data (if deep learning methods are going to be used)
- noise in data looks like anomaly

shortcomings of statistical anomaly detection methods:

- hard to find the best statistics
- depend on a particular distribution
- hard to capture interactions between variates

The blue ones are what we must tackle and the red ones are what we try to breakthrough in our to be started SQC paper. (More surveys about these red and blue challenges need to be done in the following week.)

2.TODO

1. Waveline paper writing.
2. other projects of power grid started.
3. VIS 2018 paper idea evaluation and left problems solving.